



1/15

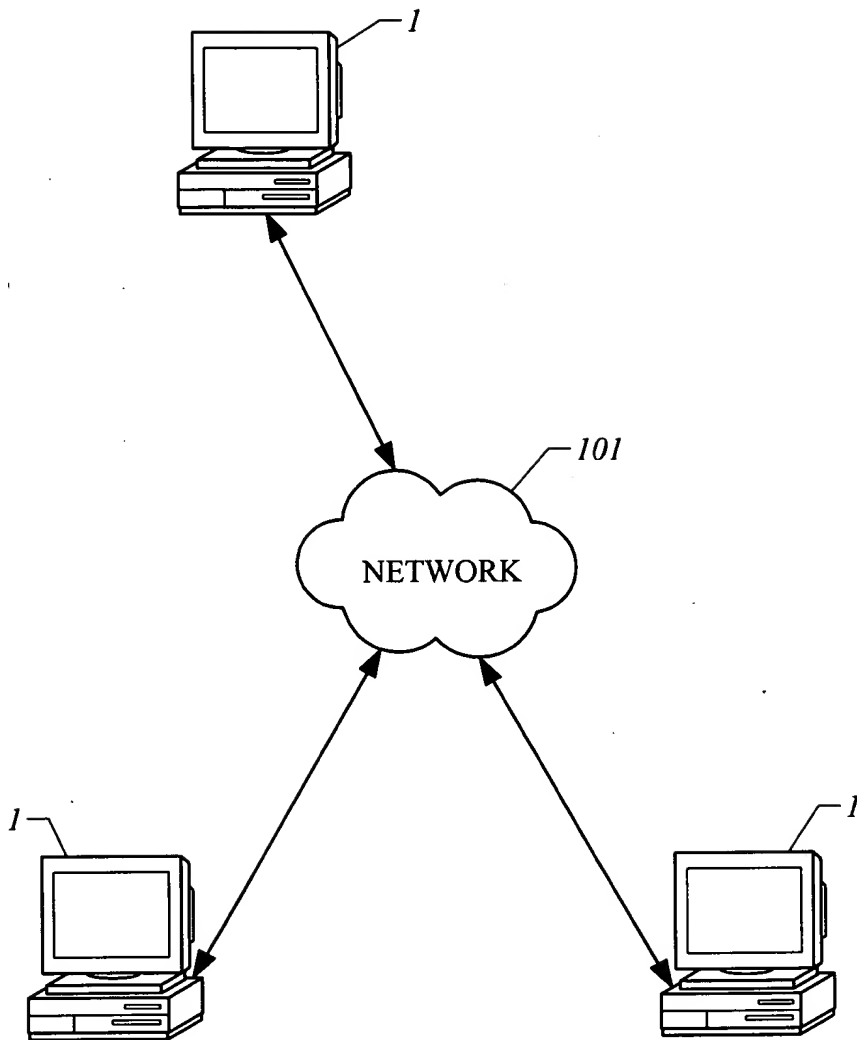


FIG. 1

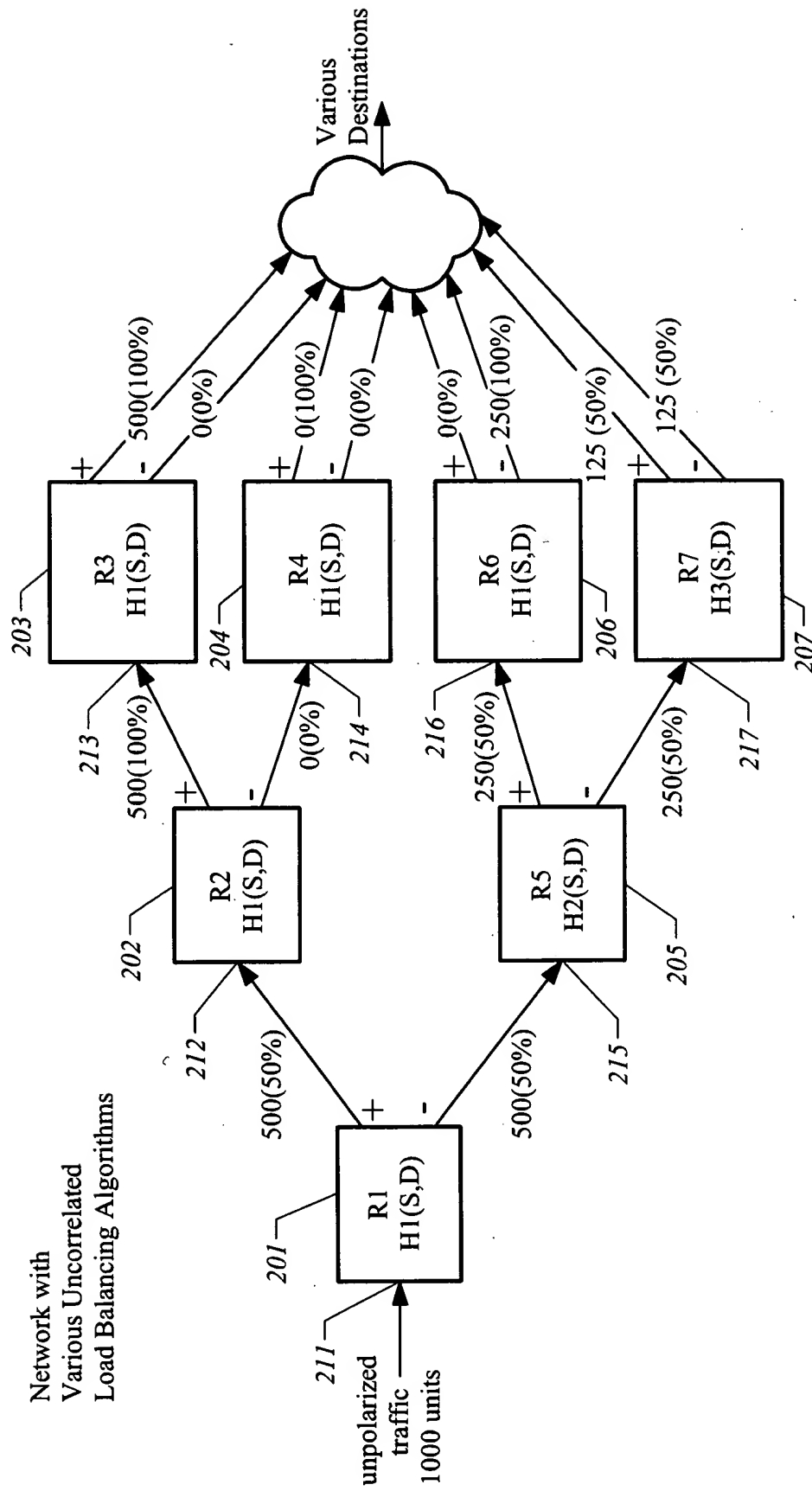


FIG. 2

SAMPLE HASH BUCKET SETUP

Hash Bin - Equal Load Balancing																
Npath	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
2	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
3	0	1	2	0	1	2	0	1	2	0	1	2	0	1	2	x
4	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3
5	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4	x
6	0	1	2	3	4	5	0	1	2	3	4	5	x	x	x	x

For the case of unequal load balancing, paths can be assigned to the hash bin taking account of the weightings. For example, for  $N_{path}=2$ , using one path twice as much as another, using 16 bins, the bins can be filled in as  $\{0,0,1,0,0,1,0,0,1,0,0,1,0,0,1,0\}$ . This is not exact but matches the weights closely. Alternatively  $N_{bin}$  can be set to 15 and the bins filled in for example as  $\{0,0,1,0,0,1,0,0,1,0,0,1,0,0,1\}$ .

FIG. 3

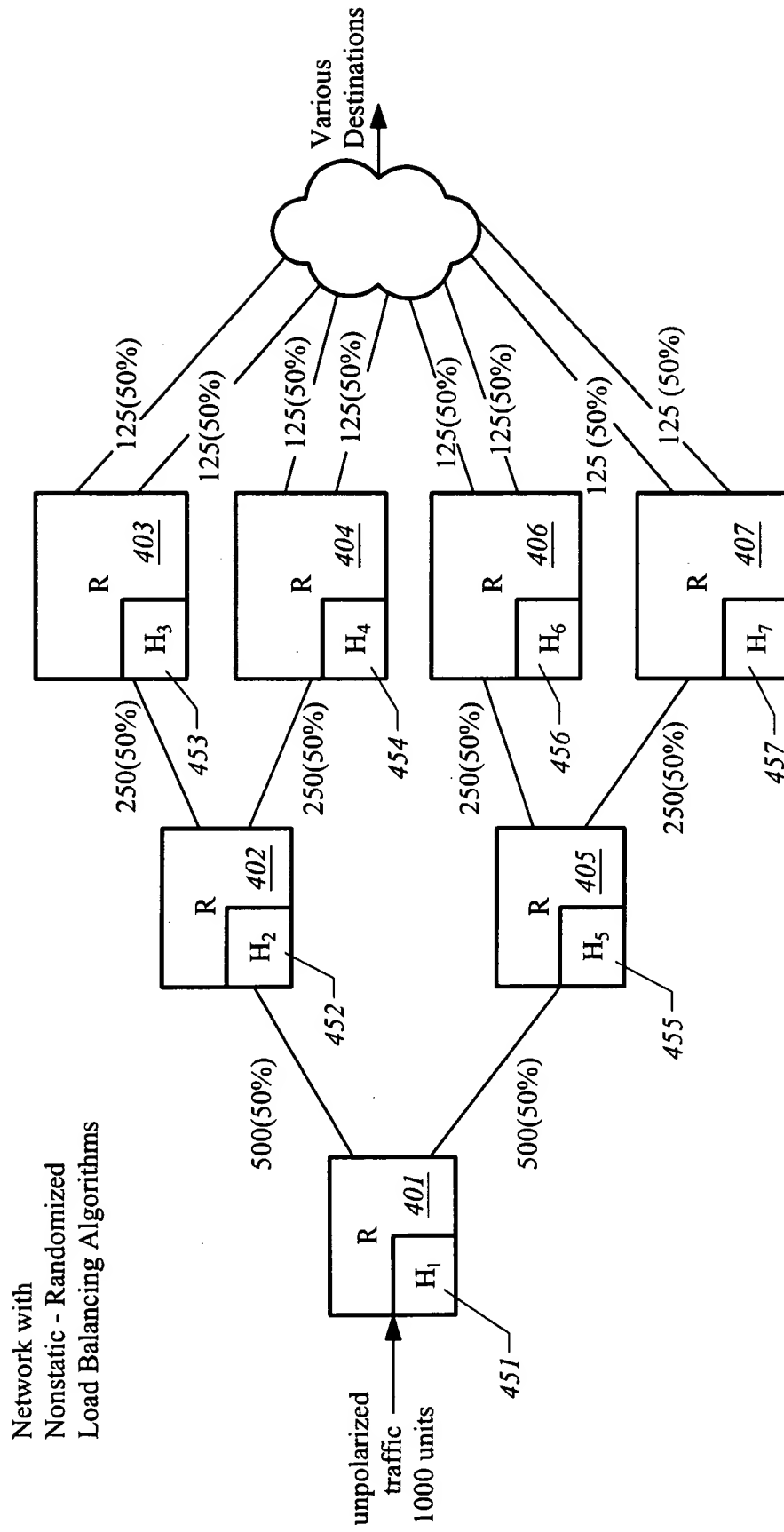


FIG. 4

## Load Balancing a Packet

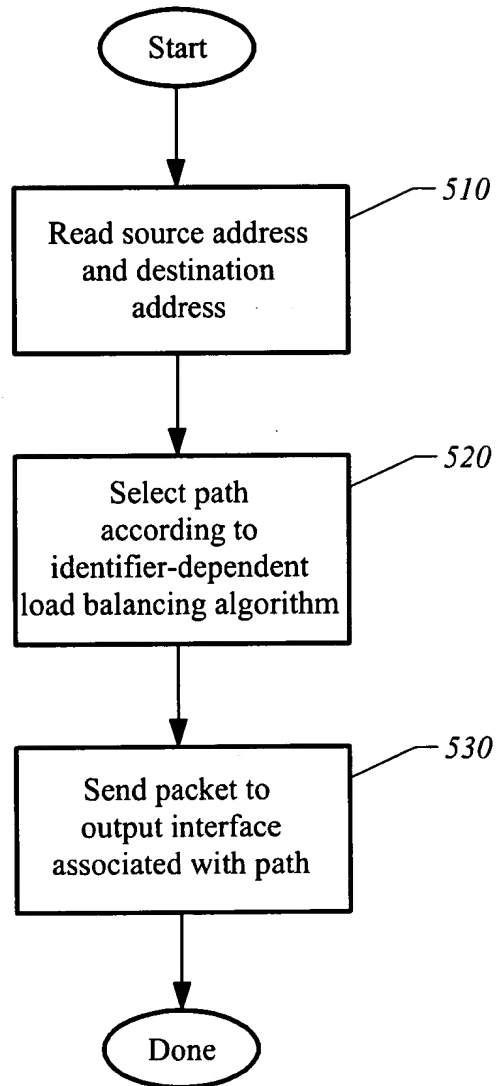


FIG. 5

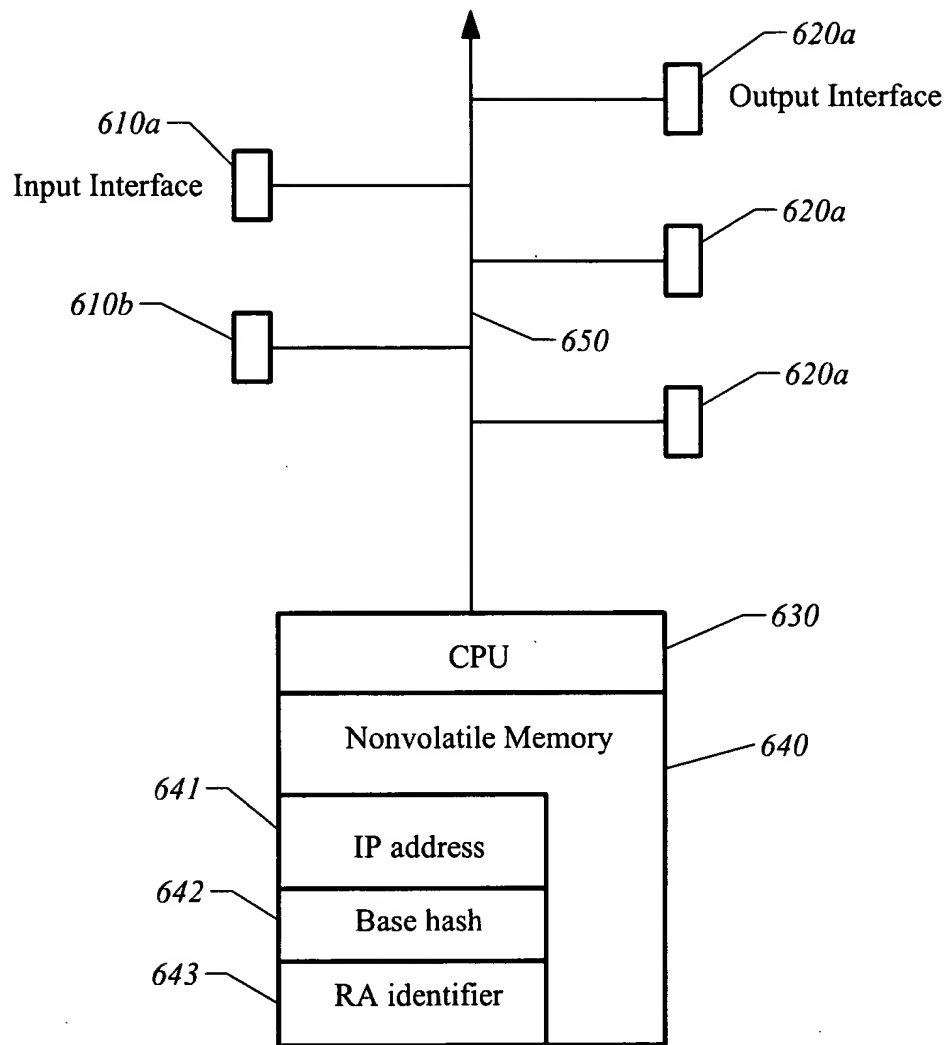


FIG. 6

Assigning an Identifier to a Router

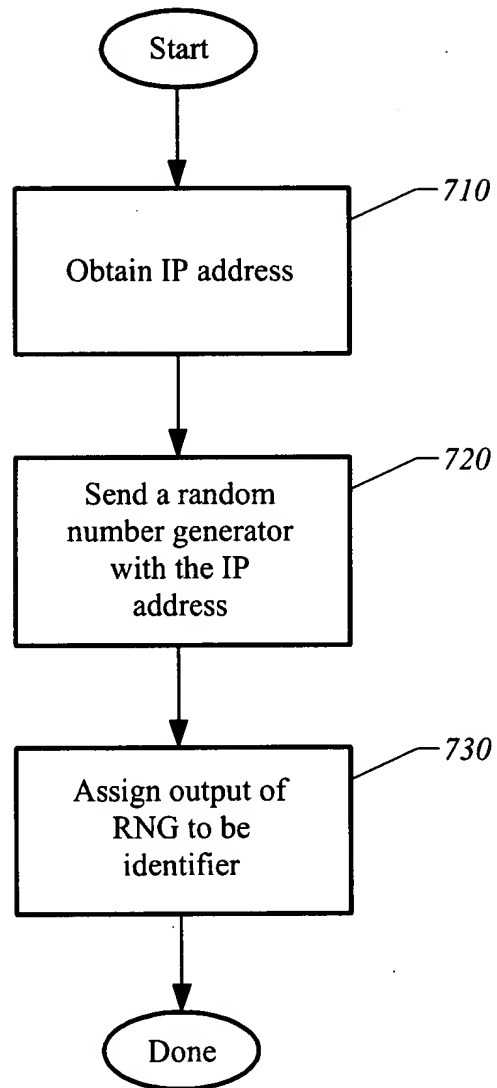


FIG. 7

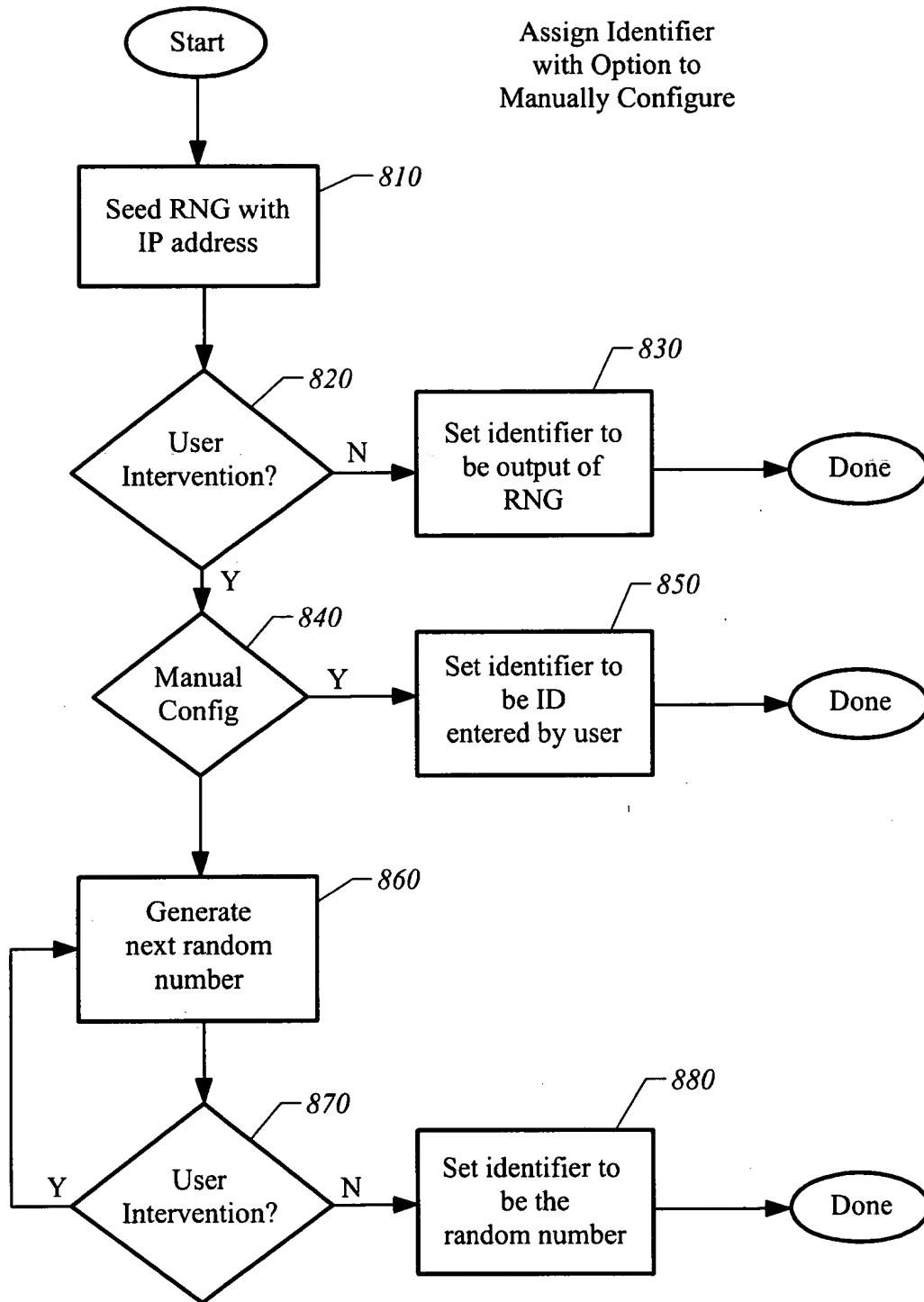


FIG. 8



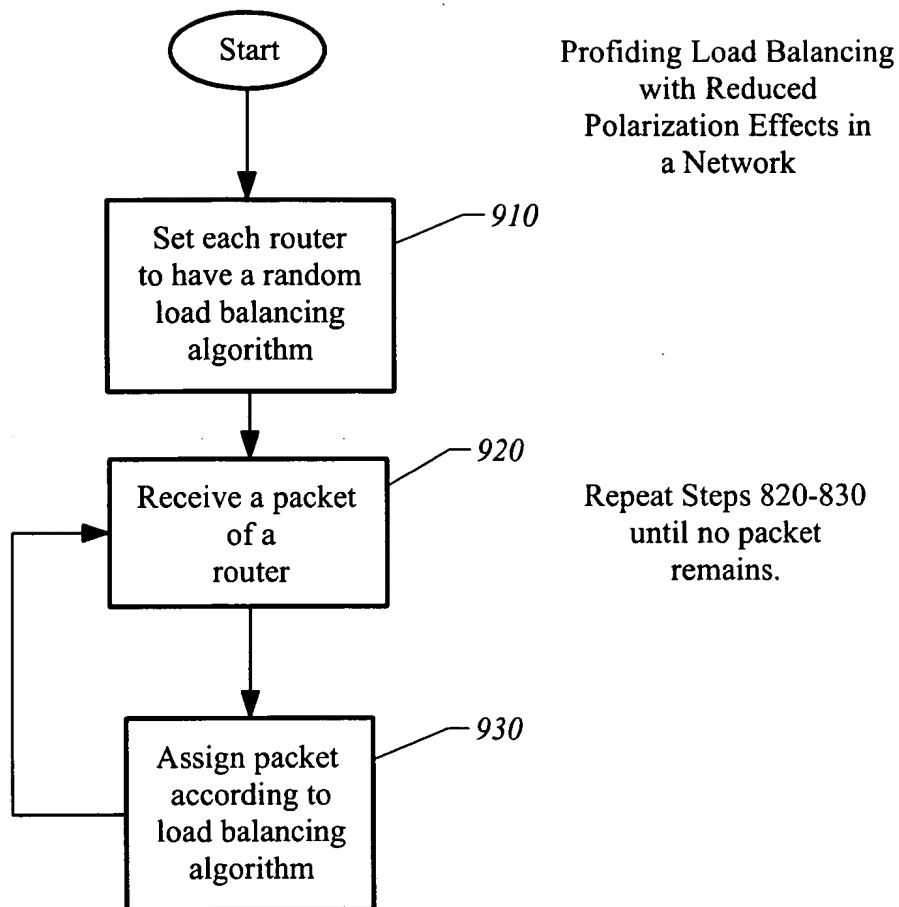


FIG. 9

Configuring a  
Plurality of  
Configurable Routers

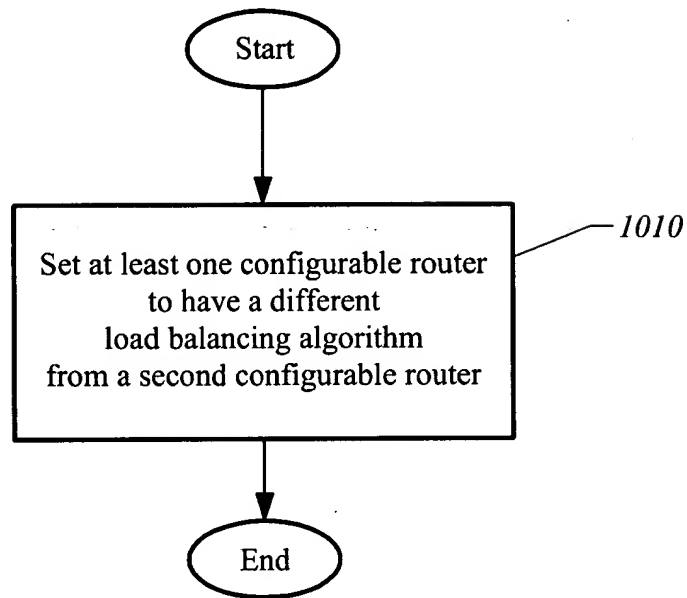


FIG. 10

INITIAL HASH TABLE

Entry	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0	0
3	3	3	3	3	3	3	3	3	3	3	3	3	3	0	1	0
4	4	4	4	4	4	4	4	4	4	4	4	4	0	1	0	0
5	5	5	5	5	5	5	5	5	5	5	5	0	1	2	1	0
6	6	6	6	6	6	6	6	6	6	6	0	1	2	0	0	0
...																
65535	16	0	1	2	3	8	5	6	7	1	3	0	3	0	1	0

row number

Each box is 4-bits of a 64-bit entry

FIG. 11

Table of Shifts	
index	shift value
1	0
2	4
3	8
4	12
5	16
6	20
7	24
8	28
9	32
10	36
11	40
12	44
13	48
14	52
15	56
16	60

*FIG. 12A*

Table of Shifts	
index	shift value
1	0
2	0
3	0
4	0
5	0
6	0
7	0
8	0
9	0
10	0
11	0
12	4
13	0
14	0
15	8
16	12

*FIG. 12B*

Generating a  
Randomized  
Hash Table  
From an Initial  
Hash Table

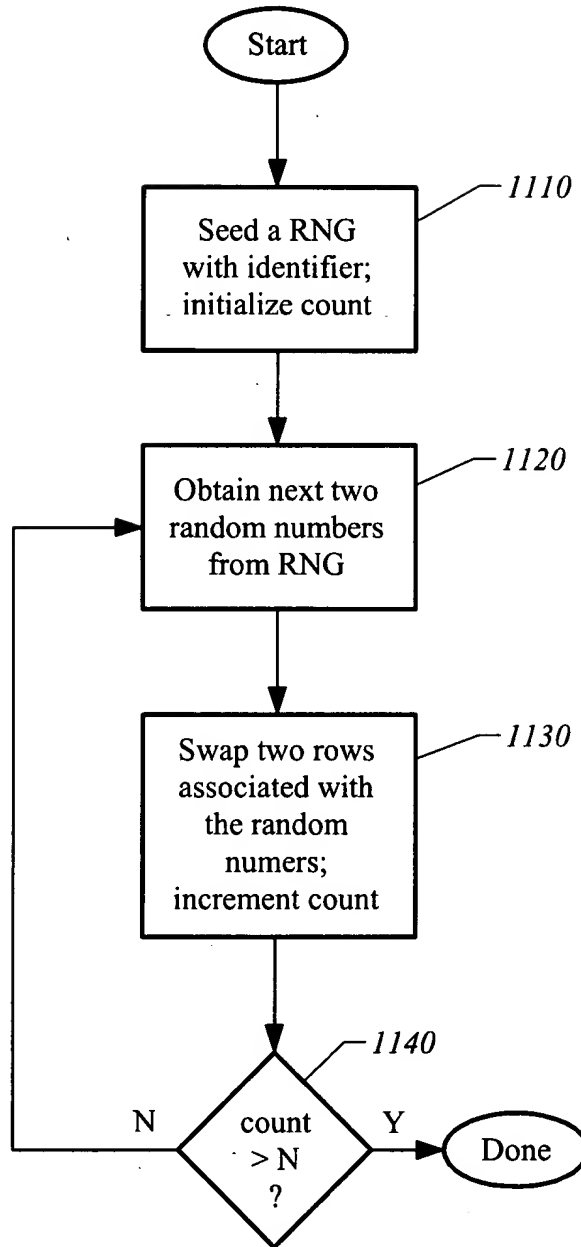


FIG. 13

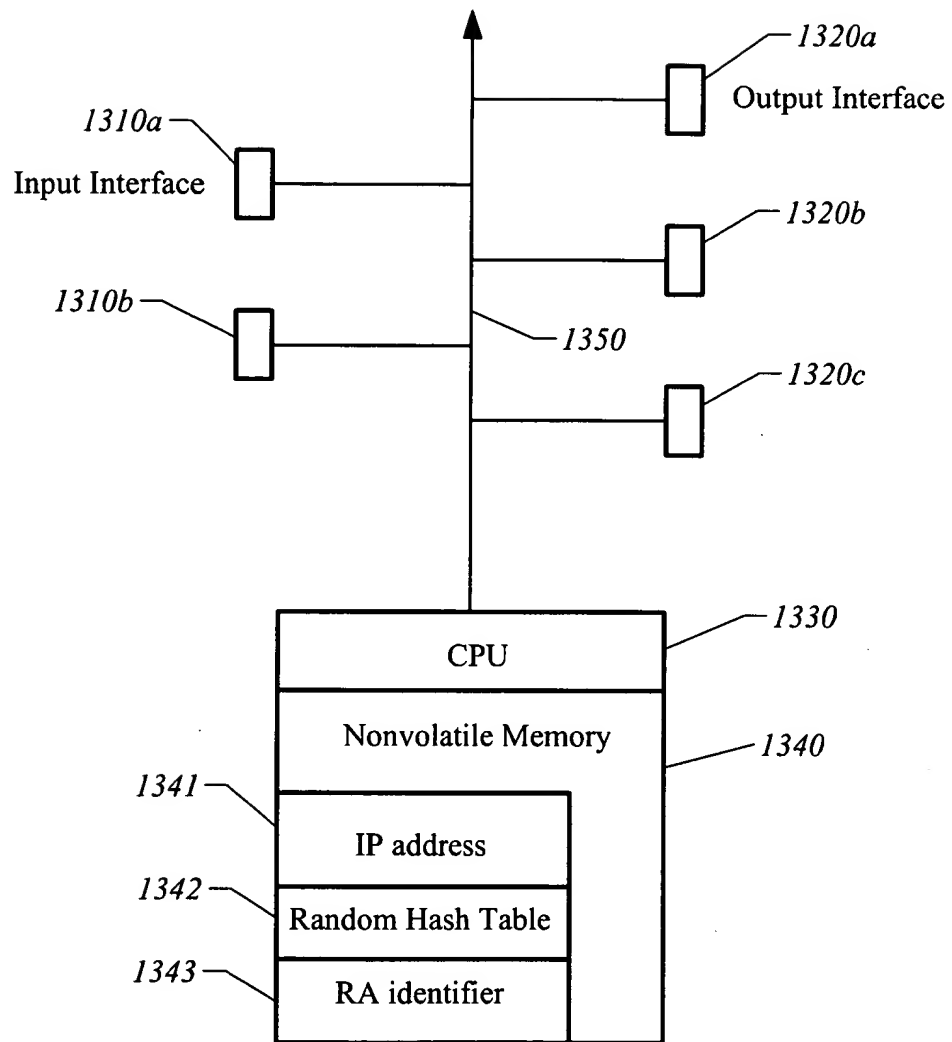


FIG. 14